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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,947	02/27/2004	Deepika Srinivasan	24174-08750	5800
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FENWICK & WEST LLP SILICON VALLEY CENTER 801 CALIFORNIA STREET MOUNTAIN VIEW, CA 94041			EXAMINER. ANYIKIRE, CHIKAODILI E	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/789,947	<b>Applicant(s)</b> SRINIVASAN ET AL.	
	<b>Examiner</b> Chikaodili E. Anyikire	<b>Art Unit</b> 2621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20050411</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This application is responsive to application number (10789947) filed on February 27, 2004. Claims 1-55 are pending and have been examined.

#### ***Information Disclosure Statement***

2. Acknowledgement is made of applicant's information disclosure statement.

#### ***Specification***

3. The disclosure is objected to because of the following informalities: page 13, Ln 19, 24, and 25; and page 14, Ln 3. Appropriate terms consistent with other part of the specification should be considered.

Appropriate correction is required.

#### ***Claim Objections***

4. Claim 2 is objected to because of the following informalities: claim 2 ends with a semicolon. Appropriate correction is required.

#### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

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F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 27, 28, 53, 54, and 55 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, and 17-20 of copending Application No. 11/265533. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are conceptually reciting the same invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 2 recites the limitation "determining at least one phase correlation peak" in claim 2 Ln 1-2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 101***

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9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 54 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. An acceptable form of the preamble of claim 54 reads, "A computer readable medium encoded with computer executable instructions for controlling a processor, said set of computer executable instructions performing:". See "101 Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility", Annex IV, Computer-Related Non-Statutory Subject Matter.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-18 and 20-55 rejected under 35 U.S.C. 102(e) as being anticipated by Biswas et al (US 7, 197, 074).

As per claim 1, Biswas et al disclose a computer implemented method of determining a motion vector for encoding a block of a predicted frame with respect to a reference frame, the method comprising (Fig 1, Col 3 Ln 15-16):

determining a number of phase correlation peaks between a phase correlation block of the predicted frame and a corresponding phase correlation block of the reference frame, the phase correlation block of the predicted frame including the block (Fig 4, Correlation surface 400; Col 4 Ln 49-52 and Col 6 Ln 9-12);

determining for each phase correlation peak, a motion vector (Col 4 Ln 49-52);  
and

selecting from the motion vectors, a motion vector that minimizes a distortion measure between the block and a reference block offset from the block by motion vector (Col 5 Ln 62 – Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 2, Biswas et al disclose a computer implemented method of claim 1, wherein determining at least one phase correlation peak, comprises:

applying a Fourier transform to a phase correlation block of predicted frame and a corresponding phase correlation block of the reference frame (Fig 1, 104, Col 3 Ln 55-61 and Col 4 Ln 16-18);

determining a normalized cross product of the Fourier transforms (Fig 1, 108 and 110, Col 4 Ln 31-44);

determining an inverse Fourier transform to obtain a phase correlation surface (Fig 1, 112; Col 4 Ln 45-49); and

determining at least one peak on phase correlation surface (Col 4 Ln 49-52).

As per claim 3, Biswas et al disclose the computer implemented method of claim 1, wherein determining at least one phase correlation peak, comprises:

determining for each peak a motion vector (Col 4 Ln 49-52);

selecting from the determined motion vectors, a motion vector that minimizes a distortion measure between the block and a block of the reference frame offset from the block by the motion vector (Col 5 Ln 62 – Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 4, Biswas et al disclose the computer implemented method of claim 1, wherein selecting a motion vector, comprises:

applying each of the motion vectors to the block to obtain the reference block in the reference frame (Col 5 Ln 14-19);

selecting the motion vector that minimizes a distortion measure between the block and the reference block (Col 5 Ln 62- Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 5, Biswas et al disclose the computer implemented method of claim 1, wherein each phase correlation block has horizontal and vertical dimensions that are a function of a maximum magnitude of the motion vectors (Col 4 Ln 19-24).

As per claim 7, Biswas et al disclose the computer implemented method of claim 1, further comprising:

applying to the phase correlation block of the predicted frame a windowing function prior to determining the at least one phase correlation peak (Fig 1, 102; Col 3 Ln 45 – 54).

As per claim 8, Biswas et al disclose the computer implemented method of claim 7, wherein the windowing function reduces discontinuity between adjacent phase correlation block (Fig 1, 102, Col 3 Ln 45 – 54).

As per claim 9, Biswas et al disclose the computer implemented method of claim 7, wherein the windowing function is a smoothing function at the edges of the phase correlation block (Fig 1, 102, Col 3 45 – 54 and Col 3 Ln 65 – Col 4 Ln 2).

As per claim 12, Biswas et al disclose the computer implemented method of claim 1, wherein phase correlation blocks of the predicted frame are non-overlapping (Fig 5, Col 5 Ln 14 – 38).

As per claim 13, Biswas et al disclose the computer implemented method of claim 1, wherein phase correlation blocks of the predicted frame are overlapping (Col 3 Ln 62 – Col 4 Ln 9).

As per claim 14, Biswas et al disclose the computer implemented method of claim 13, wherein the phase correlation blocks overlap by a minimum overlap value, where the minimum overlap value is greater than or equal to a maximum magnitude of the motion vectors (Col 3 Ln 62 – Col 4 Ln 9).

As per claim 15, Biswas et al disclose the computer implemented method of claim 13, wherein selecting from the motion vectors comprises selecting from the motion vectors associated with all phase correlation blocks that include the block (Col 5 Ln 62 – Col 6 Ln 5).

As per claim 16, Biswas et al disclose the computer implemented method of claim 1, wherein determining a number of phase correlation peaks comprises:

determining a fixed number of correlation peaks (Col 4 Ln 49 – 59).

As per claim 17, Biswas et al disclose the computer implemented method of claim 1, wherein determining a number of phase correlation peaks comprises:



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determining a variable number of correlation peaks (Col 4 Ln 49 – 59).

As per claim 18, Biswas et al disclose the computer implemented method of claim 1, wherein determining a number of phase correlation peaks comprises:

determining a number of phase correlation peaks as a function of a size of the block (Col 4 Ln 49-61 and Col 5 Ln 4-8).

As per claim 22, Biswas et al disclose the computer implemented method of claim 1, wherein selecting a motion vector comprises:

selecting a first motion vector which reduces the distortion measure below a threshold value (Col 5 Ln 46 – 50).

As per claim 23, Biswas et al disclose the computer implemented method of claim 22, wherein the threshold is a fixed distortion threshold (Col 5 Ln 46 – 50).

As per claim 24, Biswas et al disclose the computer implemented method of claim 22, wherein the threshold is an adaptive distortion threshold (Col 5 Ln 46 – 54).

As per claim 25, Biswas et al disclose the computer implemented method of claim 24, wherein the adaptive distortion threshold is a minimum distortion measure of a plurality of neighboring blocks (Col 5 Ln 46 – 54).

As per claim 26, Biswas et al disclose a method of determining motion vectors for encoding a predicted frame with respect to a reference frame, the method comprising:

determining a phase correlation between the predicted frame and the reference frame, wherein the phase correlation produces a phase correlation surface including a number of phase correlation peaks (Fig 4, Correlation Surface 400; Col 4 Ln 19 – 49 and Col 6 Ln 9-12); and

determining the motion vectors for encoding the predicted frame from motion vectors defined by locations of the phase correlation peaks on the phase correlation surface (Col 4 Ln 49 – 52 and Col 7 Ln 4-11).

As per claim 27, Biswas et al disclose a computer implemented method of determining motion vectors for encoding blocks of a predicted frame with respect to a reference frame, the method comprising:

dividing the predicted frame and the reference frame into a plurality of phase correlation blocks, each phase correlation block including a number of blocks (Col 3 Ln 55 – 61);

for each phase correlation block in the predicted frame, determining a number of phase correlation peaks between the phase correlation block and a corresponding phase correlation block of the reference frame, and for each phase correlation peak, determining an associated motion (Col 4 Ln 19 –52 and Col 6 Ln 9-12); and

for each phase correlation block in the predicted frame, and for each block to be predicted in the phase correlation block; selecting from the motion vectors associated with the phase correlation block, a motion vector that minimizes a distortion measure between the block and a reference block in the reference frame offset from the block from the block by the motion vector (Col 5 Ln 62 – Col 6 Ln 5 and Col 7 Ln 4-11).

As per claim 28, arguments analogous to those presented for claim 1 is applicable to claim 29.

As per claim 29, arguments analogous to those presented for claim 2 is applicable to claim 29.

As per claim 30, arguments analogous to those presented for claim 3 is applicable to claim 30.

As per claim 31, arguments analogous to those presented for claim 4 is applicable to claim 31.

As per claim 32, arguments analogous to those presented for claim 5 is applicable to claim 32.

As per claim 33, arguments analogous to those presented for claim 6 is applicable to claim 33.

As per claim 34, arguments analogous to those presented for claim 7 is applicable to claim 34.

As per claim 35, arguments analogous to those presented for claim 8 is applicable to claim 35.

As per claim 36, arguments analogous to those presented for claim 9 is applicable to claim 36.

As per claim 39, arguments analogous to those presented for claim 12 is applicable to claim 39.

As per claim 40, arguments analogous to those presented for claim 13 is applicable to claim 40.

As per claim 41, arguments analogous to those presented for claim 14 is applicable to claim 41.

As per claim 42, arguments analogous to those presented for claim 15 is applicable to claim 42.

As per claim 43, arguments analogous to those presented for claim 16 is applicable to claim 43.

As per claim 44, arguments analogous to those presented for claim 17 is applicable to claim 44.

As per claim 45, arguments analogous to those presented for claim 18 is applicable to claim 45.

As per claim 49, arguments analogous to those presented for claim 22 is applicable to claim 49.

As per claim 50, arguments analogous to those presented for claim 23 is applicable to claim 50.

As per claim 51, arguments analogous to those presented for claim 24 is applicable to claim 51.

As per claim 52, arguments analogous to those presented for claim 25 is applicable to claim 52.

As per claim 53, arguments analogous to those presented for claim 26 is applicable to claim 53.

As per claim 54, arguments analogous to those presented for claim 1, 26, and 27 is applicable to claim 54.

As per claim 55, arguments analogous to those presented for claim 1 is applicable to claim 55.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 6 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7, 197, 074) in view of Zhang et al (US 6, 449, 312).

As per claim 6, Biswas et al discloses the search window dimensions are integers of powers 2.

However, Biswas et al does not disclose the search window dimensions greater than  $2S+16$ .

In the same field of endeavor, Zhang et al disclose motion estimation for a current macroblock (conventionally 16x16 pixels (Fig 1, image block 2; Col 2 Ln 37-40; Col 3 Ln 29-35)). Zhang et al further disclose that the search window of motion displacement can be as large as 128 pixels (Col 1 Ln 36-43; search windows are conventionally 32x32, 64x64, 128x128, etc., wherein all M and N are integers each a power of 2). Considering search window 4 in Fig 1 being a motion of 128x128, the

maximum horizontal and vertical components of MV97) will be 32 pixels. The configuration meets the (i.e.,  $S_h$  and  $S_v$ ) relation  $N$  or  $M > 2S_h + 16$  or  $2S_v + 16$ .

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the search window function of Zhang et al because a larger search areas will result in more accurate motion estimation and enhanced image quality.

As per claim 33, arguments analogous to those presented for claim 6 is applicable to claim 33.

15. Claims 6 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7, 197, 074) in view of Aude, Ario. "A Tutorial in Coherent and Windowed Sampling with A/D Converters". February 1997.

As per claim 10, Biswas et al disclose the computer implemented method of claim 7.

However, Biswas et al does not explicitly each wherein the windowing function is an extended 2D cosine bell function.

In the same field of endeavor, Aude discloses wherein the windowing function is an extended 2D cosine bell function (page 7, Extended Cosine Bell).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the window function of Aude. The advantage of window function is that it prevents leakage in a signal and performing 2D cosine bell windowing function is a well-known procedure conventionally implemented prior to Fourier Transformation.

As per claim 11, Biswas et al disclose the computer implemented method of claim 10.

However, Biswas et al disclose the windowing function is:

$$W(m,n) = \begin{cases} \frac{1}{2} \left[ 1 - \cos \left( \frac{16 * m * \Pi}{M} \right) \right] * \frac{1}{2} \left[ 1 - \cos \left( \frac{16 * n * \Pi}{N} \right) \right] & \text{for } \left( \frac{M}{16} \leq m \dots \text{or} \dots m \geq \frac{15 * M}{16} \right) \text{ and } \left( \frac{N}{16} \leq n \dots \text{or} \dots n \geq \frac{15 * N}{16} \right) \\ 1 & \text{otherwise.} \end{cases}$$

where M is a width of a phase correlation block and N is a height of a phase correlation block.

In the same field of endeavor, Aude teaches the windowing function which is analogous to windowing function of claim 11:

$$A = \begin{cases} \frac{1}{2} \left[ 1 - \cos \left( \frac{16 * t * \Pi}{T} \right) \right] & \text{for } (t = 0 \dots \text{to} \dots T / 10 \dots \text{and} \dots t = 9T / 10 \dots \text{to} \dots T) \text{, and} \\ A = 1 & \text{for } t = T / 10 \dots \text{to} \dots 9T / 10. \end{cases}$$

where M is a width of a phase correlation block and N is a height of a phase correlation block (pg7, extended cosine bell selecting a denominator of 16 instead of 10 is an obvious option for image processing).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to consider an interval of 1/16 instead of 1/10 (conventional interval in image coding) to obtain:

$$W(m,n) = \begin{cases} \frac{1}{2} \left[ 1 - \cos \left( \frac{16 * m * \Pi}{M} \right) \right] * \frac{1}{2} \left[ 1 - \cos \left( \frac{16 * n * \Pi}{N} \right) \right] & \text{for } \left( \frac{M}{16} \leq m \dots \text{or} \dots m \geq \frac{15 * M}{16} \right) \text{ and } \left( \frac{N}{16} \leq n \dots \text{or} \dots n \geq \frac{15 * N}{16} \right) \\ 1 & \text{otherwise.} \end{cases}$$

The advantage of window function is that it prevents leakage in a signal and performing 2D cosine bell windowing function is a well-known procedure conventionally implemented prior to Fourier Transformation.

As per claim 37, arguments analogous to those presented for claim 10 is applicable to claim 37.

As per claim 38, arguments analogous to those presented for claim 11 is applicable to claim 38.

16. Claims 20, 21, 47, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswas et al (US 7, 197, 074) in view of Biswas et al. "A Novel Motion Estimation Algorithm Using Phase Plane Correlation for Frame Rate Conversion". November 2002.

As per claim 19, Biswas et al disclose the computer implemented method of claim 1.

However, Biswas et al does not teach wherein determining at least one phase correlation peak comprises:

determining a number of correlation peaks as a function of a variance of the values of the values of the phase correlation peaks

In the same field of endeavor, Biswas et al teaches wherein determining at least one phase correlation peak comprises:

determining a number of correlation peaks as a function of a variance of the values of the values of the phase correlation peaks (Section 3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the method of Biswas et al. The advantage is that it compensates for the speed of motion.



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As per claim 20, Biswas et al disclose the computer implemented method of claim 1.

However, Biswas et al does not teach wherein determining at least one phase correlation peak comprises interpolating subpixel peak values from the phase correlation peaks at pixel locations in the phase correlation block.

In the same field of endeavor, Biswas et al teach wherein determining at least one phase correlation peak comprises interpolating subpixel peak values from the phase correlation peaks at pixel locations in the phase correlation block (Section 4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the method of Biswas et al. The advantage is that it compensates for the speed of motion.

As per claim 21, Biswas et al disclose the computer implemented method of claim 1.

However, Biswas et al does not teach wherein selecting a motion vector comprises:

determining a plurality of subpixel motion vectors near the selected motion vector; and

selecting one of the plurality of subpixel motion vectors.

In the same field of endeavor, Biswas et al teach wherein selecting a motion vector comprises:

determining a plurality of subpixel motion vectors near the selected motion vector (Section 4); and

selecting one of the plurality of subpixel motion vectors (Section 4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify the method of Biswas et al with the method of Biswas et al. The advantage is that it compensates for the speed of motion.

As per claim 46, arguments analogous to those presented for claim 19 is applicable to claim 46.

As per claim 47, arguments analogous to those presented for claim 20 is applicable to claim 47.

As per claim 48, arguments analogous to those presented for claim 21 is applicable to claim 48.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chikaodili E. Anyikire whose telephone number is (571) 270-1445. The examiner can normally be reached on Monday to Friday, 7:30 am to 5 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272 - 7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CEA

*Mehrdad Dastouri*  
**MEHRDAD DASTOURI**  
**SUPERVISORY PATENT EXAMINER**  
*TC 2600*